



MISSOURI RIVER - DEARBORN DRAINAGE

PHYSICAL DESCRIPTION

The Upper Missouri River drainage includes the Missouri River and tributaries from Holter Dam near Wolf Creek downstream nearly 105 river miles to Morony Dam, 15 miles northeast of Great Falls. This river reach spans nearly 93 miles from Holter to Black Eagle dam. Below Black Eagle Dam, the river is impounded by Rainbow Dam, creating a shallow run-of-the-river reservoir that is available for public fishing. Public access for fishing is not available downstream of Rainbow Dam. Stream gradient averages only about 2 feet/mile and varies from 7.84 feet/mile at Pine Island Rapids to 0.52 feet/mile near Ulm. The river is surrounded by the Big Belt Mountains to the southeast and the east front of the Rocky Mountains to the northwest. Small communities along the river include Craig, Hardy, Cascade and Ulm. The river channel upstream of the Dearborn River has extensive side channel development. It becomes confined and entrenched in a single, deep channel as it flows through a mountainous canyon to the mouth of Sheep Creek. The river then meanders across a wide and flat prairie zone into Great Falls. Riparian vegetation consisting of a willow understory/cottonwood overstory lines much of the lower river.

Major tributaries in this reach include Little Prickly Pear Creek, the Dearborn River, Sheep Creek, the Smith River and the Sun River. Minor tributaries include Rock, Wegner, Stickney, Hardy, Bird, Little Muddy, and Sand Coulee creeks. The tributaries add considerable flow to the Missouri during spring runoff, but contribute little flow during the remainder of the year.

River characteristics and flow in this section are heavily influenced by the three upstream hydroelectric dams, Canyon Ferry, Hauser, and Holter. Canyon Ferry dam is operated by the BOR for irrigation, hydropower, flood control, recreation, and as a supplemental water supply for the City of Helena. Hauser and Holter reservoirs lie downstream from Canyon Ferry and provide hydroelectric power. They are operated by PPL Montana as run-of-the-river projects, passing out the same flows that enter the reservoirs. Water management and storage practices at Canyon Ferry Dam, the largest of the three upstream reservoirs affects flows in this tailwater reach below Holter Dam. Annual mean flow measured below Holter Dam from 1946 to 2011 ranged from 3,008 to 8,497 cubic feet per second (cfs), while annual peak inflows to Canyon Ferry ranged from 3,370 to 34,800 cfs. From 1999 through 2007, a drought in central Montana reduced peak flows in the Missouri River substantially below the long-term average. Annual mean flow measured near Ulm (9 river miles downstream from the confluence of the Smith River) from 1948 to 2011 was 6,247, and ranged from 3,479 to 9,653 cfs; the annual peak flow ranged from 5,300 to 35,000 cfs.

FISHERIES MANAGEMENT

Gamefish species of the greatest interest to the public within this management area include rainbow and brown trout, mountain whitefish, walleye, and burbot (ling). The 35 mile reach from Holter Dam to Cascade Bridge is designated as one of Montana's premier river "Blue Ribbon" trout fisheries. This reach supports an abundance of wild rainbow and brown trout, which are the dominant sport fish; the population includes trophy sized fish.

In most years since 1982, FWP fisheries staff has conducted population monitoring for rainbow and brown trout in two sections of the 35 mile river reach between Holter Dam and the town of Cascade (Craig study section = 5.6 miles, Cascade study section = 4.1 miles). Population estimates are derived using standardized methods, including night electrofishing to mark and recapture fish in the spring and fall. Estimates are based on trout 10 inches and longer.

In fall 2011, rainbow trout in the Craig section were estimated at 6,034 per mile, which is the highest number on record. The 30-year mean is 3,036 rainbow trout per mile. In the Craig section, a numerous 10-12 inch hatchery fish were captured that had flushed from the reservoir complex upstream. Hatchery fish made up 20.2% of the fish sampled, enough to allow for an estimate of 1,605 hatchery rainbow trout fish per mile to be calculated. The presence of this number of hatchery fish in the Craig section is a significant departure from previous sampling efforts. Earlier work had demonstrated little hatchery influence to the trout population below Wolf Creek Bridge. Brown trout greater than 10 inches in the Craig section were estimated at 537 per mile in spring 2011, which is slightly lower than the long term average of 579. In the Cascade section, the estimate of rainbow trout 10 inches or greater was 2,161 per mile. The 30-year mean is 1,506. In the Cascade section, the brown trout estimate was 909 fish 10 inches or greater per mile in spring 2011, much above the long term average of 364.

Additionally, walleye and burbot are incidentally sampled during electrofishing operations. Over the period of record there have been changes in the number of walleye sampled in the Missouri River below Holter Dam. The increase in walleye production in Canyon Ferry Reservoir since 1994 appears to have resulted in an increase in walleye in the Missouri River below Holter Dam. However, no evidence has been gathered which suggests an ecological impact to trout in this reach at the population level. Many factors are present that could negatively affect trout populations, including increased densities of walleye, increase in angler use, prolonged drought conditions, and whirling disease infections. However, despite these factors in play for much of the past 18 years, trout populations appear resilient and show no evidence of decline. The FWP Commission established a “no limit for walleye” harvest regulation on the section of the Missouri River from Holter Dam to Cascade in 2012 as an effort to protect the rainbow and brown trout fishery.

Trout numbers drop markedly below Ulm where burbot and walleye become more prevalent in the fishery. However, trout still remain the dominant game fish. Other common species in this reach of the Missouri River include mountain whitefish, longnose and white suckers, carp, longnose dace, and Rocky Mountain sculpin.

Fishing pressure in the reach is heavy, with the tail water fishery from Holter Dam to Cascade Bridge always ranking among the top 4 fisheries throughout the state during the past 17 years (1991-2007). This section of river has averaged over 91,000 angler days per year since 1991. In 2009, the average annual revenue generated by this 35 mile reach of river was estimated at \$12.1 million. Economic statistics for angler use are based on goods and services anglers purchased during a typical fishing trip, including food, gasoline, bait, lures, license, outfitter-guide fees and lodging. This exercise produces a conservative estimate of the economic value of an angler day because only expenditures for non-durable goods were included and not durable goods such as boats, waders, fishing rods and vehicles.

This section of the Missouri River is popular and heavily utilized for recreation due to both the characteristics of the fishery and the excellent access throughout much of the reach. A frontage road, Old Highway 91, which has officially been designated as a state Recreation Road, parallels much of the river downstream to Cascade. The river section downstream from the Wolf Creek Bridge contains eleven FWP Fishing Access Sites. From Cascade to Morony Dam, there are six more Fishing Access Sites and Giant Springs State Park. A majority (80-90%) of the existing recreational use of this reach of river is angling, but recreational floating has also become more popular seasonally. Other activities include picnicking, camping, trapping, and hunting.

FISHING ACCESS

The reach on the Missouri River below Holter Dam down to Cascade has good access for recreationists and access points are spaced out to provide many options for floaters. Old US Highway 91 parallels the upper reaches of the Missouri River below Holter Dam. There are 14 Fishing Access Sites managed by FWP and one site managed by the Bureau of Land Management; nine of these provide developed or undeveloped boat ramps and four provide access for bank anglers. Between Cascade and Black Eagle Dam, there are four access sites with boat ramps, two managed by FWP and one each managed by the City of Cascade and the City of Great Falls. Additionally, five FWP managed access sites in this reach provide access for bank fishing. Below Black Eagle Dam, a boat ramp provides access for small boats between Black Eagle and Rainbow Dam. FWP also administers two access sites on Little Prickly Pear Creek. Access on the Dearborn River is limited to public land in the headwaters and at bridges on US Highway 287, Highway 200, and Route 435. Also in the upper Dearborn drainage, there is an access site on Bean Lake, but it is currently used exclusively by campers since low water and high total dissolved solids prevent a fishery from being maintained in the lake.

HABITAT

Previous research conducted by the FWP indicated that trout, particularly brown trout, prefer side channels of the Missouri River, rather than the main channel, for spawning. The preference for side channels was apparently related to the presence of more suitable depth, velocity, substrate, and adjacent cover characteristics. These studies further indicated that Missouri River side channels are vital for the rearing of young-of-the-year (YOY) rainbow and brown trout until mid-October, when large numbers of YOY begin moving from the side channels to the main river. Side channels therefore appear to be vital year-round for trout spawning, the incubation of trout eggs, and the rearing of young. Observations indicate that habitat conditions and utilization of the side channels decline precipitously when flows recede below 4,100 cfs. At a flow of 4,100 cfs, 64% of the side channels contained adequate flow for trout spawning, incubation and rearing, while at 3,600 cfs only 9% of the side channels contained adequate flow. Consequently, whenever possible, a year-round minimum flow of 4,100 cfs is recommended to maintain suitable conditions in side channels for trout spawning, incubation and rearing. If water supply conditions do not allow due to drought, PPL managers strive to maintain 2,900 cfs to maintain mainstem riffle habitat.

Housing development along the river banks has resulted in numerous boat ramps, stairs, boat docks, rip rap, retaining walls and vegetation grooming in the upper and lower reaches of this section of the Missouri River. FWP has recommended the Conservation Districts (Lewis and

Clark, Cascade) do not permit new boat ramps in the reach between Holter Dam and Cascade Bridge. Housing development in the lower 26 miles has increased and resulted in FWP making stronger recommendations against bank modifications to preserve river riparian habitat.

SPECIAL MANAGEMENT ISSUES

The Missouri Advisory Committee was established in 1983 when the then operator of Holter and Hauser dams, the Montana Power Company (MPC), was considering returning the operation of Holter Dam to a power peaking facility. It had been operated in that manner prior to the early 1970's. The committee addressed the peaking issue with members representing FWP, MPC (now PPL-Montana), the BOR, outfitters, irrigators, and sporting clubs. The committee continues to meet annually to discuss and coordinate information regarding the fisheries, water supply and weather forecasts, and reservoir operations.

Operation guidelines were integrated into the Federal Energy Regulatory Commission (FERC) order issued as part of the Madison/Missouri River 2188 Project License that included Hauser and Holter dam operations designed to protect the fishery. In addition, PPL-Montana has entered into an MOU with FWP and to cooperate in implementation of the fisheries Protection, Mitigation and Enhancement Technical Advisory Group, which meets annually to discuss potential projects.

The Missouri River Fisheries Management Plan developed in May 1990, which officially guided management direction from 1990 through 1994, provides a partial history of management goals and actions for this reach of the river.

FISHERIES MANAGEMENT DIRECTION FOR THE MISSOURI RIVER- DEARBORN DRAINAGE

Water	Miles/acres	Species	Origin	Management Type	Management Direction
Missouri River - Holter Dam to Cascade Bridge	35 miles	Rainbow trout, brown trout	Wild	Special Regulations	Management priority is to maintain trout populations numbers within range observed since 1982 and with a sustainable proportion of larger sized fish available to the angler.
		Mountain whitefish	Wild	General	Maintain population numbers within range observed since 1982. As workload allows, determine limiting factors controlling the population level.
		Walleye	Wild (primarily produced in upstream reservoirs)	Suppression/ Special Regulations	Maintain high harvest to protect wild trout fisheries.
		Burbot	Wild	General	Monitor population through hoop net sampling protocol.
Habitat needs and activities: Cooperate with water management agencies to maintain minimum flows of 4,100 cfs to maintain side channel habitat. During drought, strive to maintain minimum flows of 2,900 cfs to maintain mainstem riffle habitat.					
Little Prickly Pear Creek and tributaries	25.6 miles	Rainbow trout, Brown trout	Wild	General	Maintain resident and Missouri River spawning populations.
Habitat needs and activities: Maintain habitat and instream flows of 70 cfs below Clark Creek and 22 cfs above Clark Creek. Maintain access to stream for fluvial fish.					
Dearborn River and tributaries (South and Middle Forks)	73.3 miles	Rainbow trout	Wild	Special Regulations	Maintain resident and Missouri River spawning populations.
		Mountain whitefish	Wild	General	Maintain population numbers within historic range
Habitat needs and activities: Work with water users to improve instream flow conditions in the drainage. Work with landowners to improve floating safety and maintain fences for livestock.					
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Water	Miles/acres	Species	Origin	Management Type	Management Direction
Missouri River - Cascade Bridge to Black Eagle Dam	57.8 miles	Rainbow trout, Brown trout	Wild	Social/General	Maintain trout populations numbers within historic range with a sustainable proportion of larger sized fish available to the angler.
		Mountain whitefish	Wild	General	Maintain population numbers within historic range. As workload allows, determine limiting factors controlling the population level.
		Walleye	Wild	Special Regulations	Provide high harvest opportunities above the Central District standard daily and possession limits to protect wild trout fisheries.
Habitat needs and activities: Cooperate with water management entities/agencies to maintain minimum flows of 4.100 cfs					
Sheep Creek	2.0 miles	Rainbow trout	Wild	General	Maintain resident and Missouri River spawning populations.
Missouri River – Rainbow Reservoir	200 acres	Rainbow Trout	Hatchery	Put- Take	Manage as a recreational fishery with significant harvest.
		Brown Trout	Wild	General	Manage as a recreational fishery with brown trout as a secondary species.
Private/Public Ponds with public access		Trout warm water species	Hatchery/ Wild	Put- Take	Maintain existing pond fisheries available to the public for harvest
Habitat needs and activities: Enhance structure in ponds when possible.					